IOWA STATE UNIVERSITY
College of Agriculture and Life Sciences

STORIES

IN AGRICULTURE AND LIFE SCIENCES
Vol.4, No.1
2010

Impact: Animal Agriculture

ALUM IS WITNESS TO HYBRID & BIOTECH ERAS

BIOCHEM GRAD ENGINEERS DNA TO BENEFIT SOCIETY

RESEARCHER INVESTIGATES DAIRY DNA FOR ENERGY BALANCE

STORIES
IN AGRICULTURE AND LIFE SCIENCES

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IOWA STATE UNIVERSITY
College of Agriculture and Life Sciences

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I'VE KISSED A PIG.

I'll admit it. The squeaky-clean little porker was my show-and-tell subject in kindergarten. He was adorable.

Our family had a small swine operation. My father did chores two five-gallon bucket loads at a time. I learned many lessons following behind Dad with a small pail of feed, among them basics of livestock production and care and welfare for animals.

You'll see a lot of animals in this issue. You'll see several lab coats, too. With a focus on livestock and poultry improvement, this issue of STORIES specifically highlights the college's research and education programs in animal breeding and genetics, animal nutrition and animal welfare.

Reviewing and writing these stories made me think of watching Al Christian receive the college's Lifetime Achievement Award recently after managing the Swine Teaching Farm for 50 years. In presenting the award, Dean Wendy Wintersteen shared that Al was known for telling his students their goal was to become a person who goes to bed at night and can't sleep unless they know their animals are well taken care of.

Several such people are featured in this issue – from students to faculty to alumni.

Among those in white is Chris Tuggle, whose work in the lab identifying swine that carry and transmit salmonella may greatly reduce the threat of food poisoning. Hongwei Xin and others are finding ways to reduce the amount of ammonia in manure improving the scent of country air for all of us. And there are those investigating the care and welfare of animals like Suzanne Millman and Anna Johnson, who would often give an appreciative swine a hearty scratch on the back during their photo shoot.

••••

Ten years ago, I sat with my fellow College of Agriculture and Life Sciences graduates as Charles Stewart delivered the commencement address, where he encouraged us to seize the day and not worry about taking the traditional path.

These pages are full of students, faculty and alumni blazing their own paths. Among them is Charles, who now is engineering DNA enzymes to battle disease and improve the world's food supply; Owen Newlin, who has been a major player in the seed industry and higher education in Iowa; and Tyler Bauman, a graduating senior who has seen two tours of active duty and is on his way to becoming a veterinarian.

Carpe diem, indeed.

Kind regards,

Melea Reicks Licht

CONTENTS

At the start of the spring semester, I asked student leaders to tell me what they valued the most about their CALS education and experiences. I wanted to add their thoughts to many ongoing discussions about current budget challenges and shrinking state resources over the last decade. Specifically, I asked them what about CALS they'd most want to protect. Here were some of their responses:

- High-quality faculty who teach in the classroom.
- Advisors who have an open-door policy.
- Beneficial hands-on learning experiences.
- Programs like Science With Practice, where you earn credit while earning a wage working with faculty mentors, and the Ag Entrepreneurship Initiative, in which students' entrepreneurial spirit is kindled.
- Study-abroad programs, especially as employers continue to say they look for international experience.
- Career services to help make jobs and internships possible.
- Student recruitment to attract even more bright minds from Iowa, nation and the world.
- Extension to connect science-based information with Iowans.
- Learning communities to get new students off to the best start.

The students' message was clear: Maintain the high-quality education, advising and opportunities that are our hallmark. It is a hallmark made possible by excellent faculty, who truly are molding the future in their classrooms and labs. Our faculty continue a stellar record in research, extension and teaching on national and international levels. They continue to demonstrate outstanding success as they step up to new opportunities and new frontiers.

Photo: Jim Heemstra

Wendy Wintersteen, dean of agriculture and life sciences.

Our students made us think hard about difficult decisions we need to make to match our vision to fiscal realities. You — our alumni and friends — continue to support us in so many ways. Our alums certainly are at the top of what makes us proud. Often we hear how your roots at Iowa State have meant the world to you. You truly are our legacy.

We continue to plan for the future. I recently read an early draft of the new university strategic plan. I clearly see CALS in the center of ISU's vision and goals. We are committed to advancing science-based knowledge, educating the future generation of leaders in agriculture and life sciences and making Iowa and the world an even better place to live.

Wendy Wintersteen
Endowed Dean of Agriculture and Life Sciences

ON THE COVER:
Hongwei Xin and colleagues study ammonia levels in poultry manure. Their research is among that featured in the animal agriculture section.

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IOWA'S FARM SAFETY CRUSADER (CAPE OPTIONAL)

By Susan Thompson

Farm accident fatalities have significantly decreased in the 20 years Charles Schwab has been ISU extension's farm safety specialist.

"There used to be 80 to 90 deaths each year on U.S. farms," he says. "Now that number is closer to 30."

There was a nationwide push in the 1990s to ramp up farm safety education. "I believe education has been a big reason for the decline in farm injuries and fatalities," he says.

Schwab is director of ISU Extension's Safe Farm program, which helps make Iowa farms safer places to work and live. As a professor in the agricultural and biosystems engineering department, Schwab has developed and taught farm safety courses, and his research has included more than 50 funded projects worth $4 million.

Charles Schwab and his "Tug-of-War with Grain" display at the Iowa State Fair.

While Schwab is involved in many aspects of farm safety, his most notable contributions have been educating young people and reducing grain bin suffocations.

One could say Schwab's alter ego is Captain Overalls, a safety crusader he helped to develop in collaboration with extension communicators. Clad in overalls and a cape, Captain Overalls stars in a series of Mystery Club bulletins.

"Before the Mystery Club, most farm safety publications were designed for adults but often were given to kids," Schwab says. "I wanted to create something specifically for young people."

Seven bulletins are complete, with five more planned. Each focuses on a different topic, such as tractor safety or farm animals. The bulletins, which target ages 7 to 14, are being translated into French in addition to English and Spanish versions.

Another publication Schwab developed targets ages 4 to 8. *What Would You Do? Helping Young Children Understand Farm Hazards* includes 24 real-life situations and guides parents and children through a discussion of farm dangers.

Schwab says his display is "learning by doing. No matter how strong they are, people walk away knowing they can't pull someone out of flowing grain," he says.

Schwab earned bachelor's, master's and doctorate degrees from the University of Kentucky, where his graduate studies focused on the dangers of flowing grain. "I was doing fundamental analysis on forces related to flowing grain that hadn't been done before," he says. The next step was to use the data to reduce fatalities.

To spread the message he created a "Tug-of-War with Grain" display that first appeared at the 1993 Iowa State Fair. Participants pull on a rope attached to a load cell inside a grain bin mock-up. The amount of force on the rope is compared to the amount of force required to pull someone out of flowing grain – an impossible feat.

The display continues to be used annually at the Iowa State Fair and other events across the Midwest. "We still have grain fatalities, but much less frequently," Schwab says. "We've raised the awareness level, and people are making better choices."

Another success for Schwab, a safety crusader without a cape. He leaves that up to Captain Overalls.

STORIES ONLINE EXTRA:
For information on borrowing a smaller scale "Tug-of-War with Grain" or other farm safety display from ISU for a farm safety camp, county fair or other youth group activity visit www.ag.iastate.edu/stories for a link.

STUDY OF **EQUINE VIRUS** MAY PAVE WAY FOR **HIV VACCINE**

By Brian Meyer

The word lentivirus has its root in the Latin "lentus," which means slow or lingering — an apt description for the chronic, persistent infections the virus causes in animals and people.

For the past 25 years, Susan Carpenter has studied the genetic strategies that allow lentiviruses to linger.

The professor of animal science studies equine infectious anemia virus, a lentivirus that afflicts horses and is a close relative of human immunodeficiency virus, HIV. That makes it a good model to inform new vaccine strategies for HIV and other persistent viruses and prevent the progression to AIDS and some cancers.

"The ability of lentiviruses to continually evolve and escape immune control is the main obstacle in developing effective vaccines for HIV and other persistent infections," she says.

With equine infectious anemia, the horse's immune system exerts some control over the lentivirus, although it can't eliminate it.

In a way, it's about prey and predator — a continually evolving virus in a continually adapting immune environment. Carpenter's long-term studies explore the interplay between virus and host and how each tries to get the upper hand over time.

"How the virus persists in the face of a fairly effective immune response is something we want to know," she says. "When a lentivirus can't run, it hides in the genome. The knowledge we discover will help lead to the design of better, smarter vaccines that anticipate the virus's next move."

"WHEN A LENTIVIRUS CAN'T RUN, IT HIDES IN THE GENOME. THE KNOWLEDGE WE DISCOVER WILL HELP LEAD TO THE DESIGN OF BETTER, SMARTER VACCINES THAT ANTICIPATE THE VIRUS'S NEXT MOVE."

The research has earned support from the National Institutes of Health and USDA. Carpenter works with colleagues at ISU and at Washington State Universty, where a research herd of horses is maintained.

It's a very integrated program, meshing expertise in molecular viology with computational modeling, protein structure and function, veterinary pathology and other disciplines to understand disease from the molecular to the in vivo level.

"Integrating all these ways of thinking is key to understanding virus-host interactions," Carpenter says.

She has found that the horse's immune response improves and broadens over time. At the same time, the wily lentivirus engages in a series of genetic tradeoffs to escape from attacking antibodies while maintaining its prime objective: replication.

"It's like the lentivirus has a rheostat, dimming when it needs to evade attention and, after biding its time, brightening to optimize its survival."

Does it sound like work that might leave a scientist shaking her head? Think again.

"How do we find the will to keep going, is that the question?" Carpenter says, laughing. "My perspective is that we're trying to provide information to allow others to develop better vaccines. We have a model system we can learn from, and figure out fundamental principles that can apply to a variety of diseases."

What she finds rewarding is constantly taking discoveries at the molecular level and placing them within the big picture of the disease.

"It's a puzzle, and scientists like solving puzzles. No matter how arcane the molecular interactions might become, you always put them into context of what's going on in vivo."

Photo: Bob Elbert

Better vaccine strategies for HIV may result from discoveries made in Susan Carpenter's lab. Carpenter, graduate student Cierra Pairett (right) and research associate Hyelee Loyd (left) study DNA sequences to better understand immune response to a virus in horses that's related to HIV.

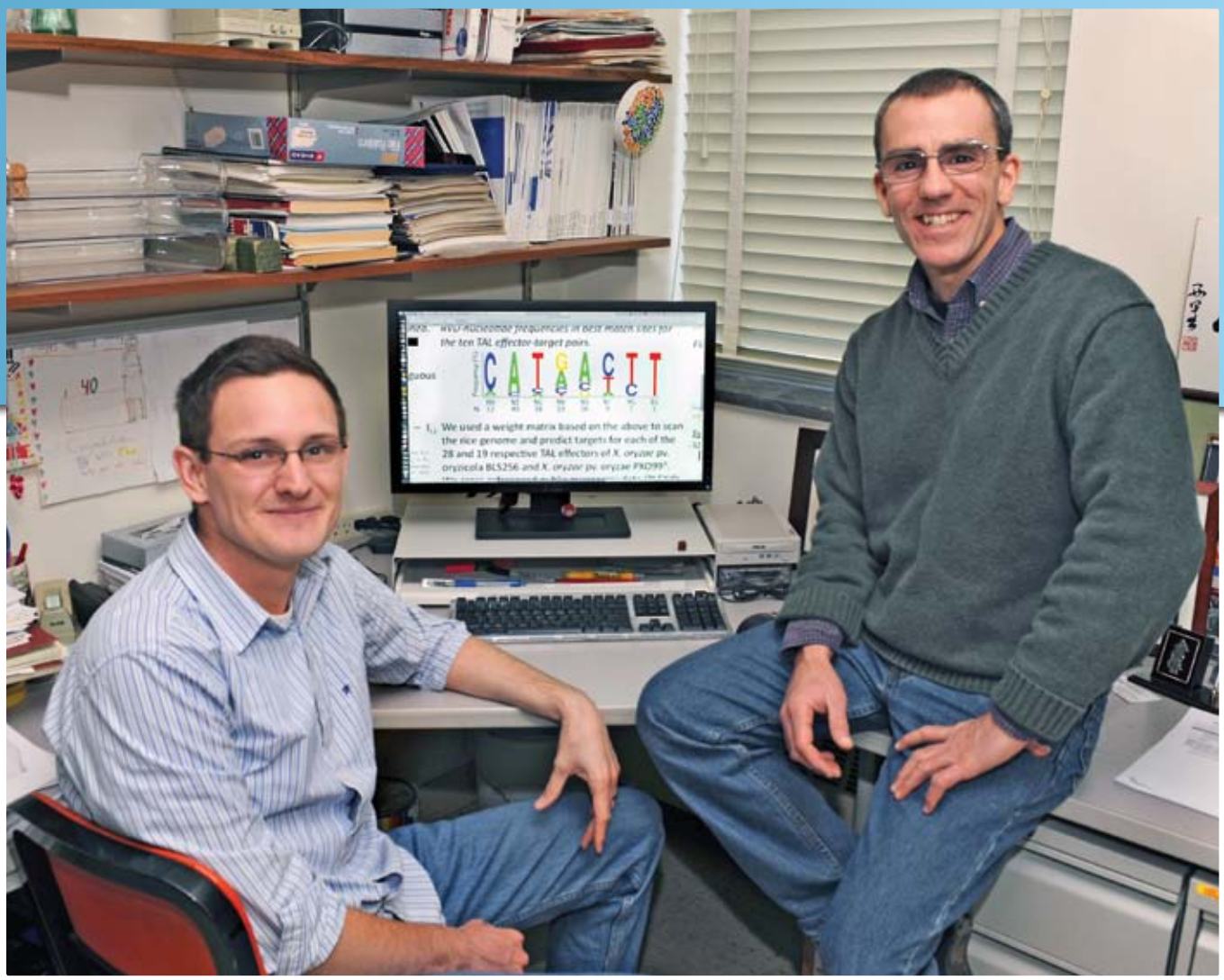


Photo: Bob Ebert

Adam Bogdanove, (right) was researching the molecular basis of bacterial diseases of rice with Matthew Moscou when they discovered how a group of proteins from plant pathogenic bacteria interact with DNA in the plant cell. His discovery could lead to disease resistant plants or be used in human gene therapy.

SIMPLICITY ITSELF: A KEY DISCOVERY TO THWART PLANT DISEASES

By Dan Kuester

"Wow, this is so simple, it's ridiculous." When Adam Bogdanove discovered a key to DNA and protein interaction he was struck by its simplicity and its implications for opening up a "cascade of advances" from disease resistance in plants to human gene therapy.

Bogdanove, associate professor in plant pathology, was working with graduate student Matthew Moscou on the molecular basis of bacterial diseases of rice when they discovered how a group of proteins from plant pathogenic bacteria interact with DNA in the plant cell.

Through computer analyses they found so-called "TAL effector" proteins (injected into plant cells by the bacterium Xanthomonas) attach at specific locations to DNA molecules. Different proteins of this class bind to different DNA locations, and particular amino acids in each protein determine those locations, called binding sites, in a very straightforward way.

> WE MIGHT BE ABLE TO USE TAL EFFECTORS TO ACTIVATE GENES IN NON-PLANT CELLS, POSSIBLY EVEN IN HUMAN STEM CELLS FOR GENE THERAPY. OR WE MIGHT BE ABLE TO USE THEM TO MODIFY DNA AT SPECIFIC LOCATIONS AND HELP US STUDY GENE FUNCTION.

"This simple relationship allows us to predict where a TAL effector will bind, and what genes it will activate. It also makes it likely that we can custom engineer TAL effectors to bind to virtually any DNA sequence," says Bogdanove.

According to Bogdanove, being able to predict TAL effector binding sites will lead quickly to the identification of plant genes that are important in disease. Natural variants that lack these binding sites are a potential source of disease resistance. Another potential application is adding TAL effector binding sites to defense-related genes so they are activated upon infection.

Having a bachelor's in biology from Yale and a doctorate in plant pathology from Cornell, Bogdanove was most tuned into plant applications for this new technology. But he says its potential extends beyond plant disease control.

"We might be able to use TAL effectors to activate genes in non-plant cells, possibly even in human stem cells for gene therapy. Or we might be able to use them to modify DNA at specific locations and help us study gene function. This could apply in many areas, including cancer research, for example," he says.

"A predictable and potentially customizable kind of protein-DNA binding has been hard to find in nature. As Matt and I talked about the possibilities, we got excited and one of us said — I don't remember who — 'We've got to submit this to *Science*, dude,'" says Bogdanove.

So they did.

Bogdanove's research was published in the December issue of the journal *Science* and its early online edition *Science Express*. Their paper was published alongside a study from another research team that arrived at the same conclusions independently.

In addition to his research program, supported by the National Science Foundation and the United States Department of Agriculture, Bogdanove spends time in the classroom. He teaches an undergraduate course on the biology of microorganisms and two graduate courses – one on fundamental genetics and one discussing the molecular biology of plant and pathogen interactions.

Photo: Bob Elbert

FRONT PAGE NEWS!

Bogdanove's research landed on the cover of *Science* magazine in December. But, he isn't the only College of Agriculture and Life Sciences researcher to recently achieve cover boy status. Erik Vollbrecht (center) and Patrick Schnable (right) have also captured a cover story in *Nature* and *Science*, respectively. Vollbrecht, genetics, development and cell biology, works to understand natural and domesticated species and the differences between them. Schnable, agronomy, led a coordinated effort culminating in the maize genome sequence, plus the demonstration of its usefulness.


Photo: Bob Elbert

TINY TURTLES, BIG LEARNING AT "TURTLE CAMP"

By Ed Adcock

For such a long-lived animal, turtles in the wild face many challenges — so many that most species are considered endangered.

Fred Janzen has been studying turtles for more than 20 years and conservation has increasingly become the focus of his work. The professor of ecology, evolution and organismal biology created a "Turtle Camp" in 1995, the year after he joined Iowa State, that gives students the chance to "get out and do science."

Janzen and his students camp in tents and cook outdoors while they study turtles on an island in the Mississippi River. Among other things, they examine the affect of predators on nest location and how location affects the sex of turtle offspring.

One of the interesting characteristics of most turtles is that they have environmental sex determination linked to temperature. Janzen says temperature determines how many male and female offspring are hatched, which directly links to whether a population will remain stable or survive.

Painted turtles, the primary species studied, can live up to 40 years. Box turtles, snapping turtles and Blanding's turtles can live much longer, even up to a century.

Studying turtles would be an interesting scientific pursuit in itself, Janzen says, but this experience offers more.

"We're using turtles as a model organism to help us answer interesting questions in environmental biology, ecology, evolutionary biology, genetics, behavior, all these big fields of biology; and conservation, increasingly conservation," he says.


Photo: Bob Elbert

Fred Janzen, left, and postdoctoral researcher Dan Warner hold hatchling painted turtles at the Horticultural Station near Ames. They are exploring why some turtles exhibit temperature-dependent sex determination rather than depending on sex chromosomes like most animals.

"WE'RE USING TURTLES AS A MODEL ORGANISM TO HELP US ANSWER INTERESTING QUESTIONS IN ENVIRONMENTAL BIOLOGY, ECOLOGY, EVOLUTIONARY BIOLOGY, GENETICS, BEHAVIOR, ALL THESE BIG FIELDS OF BIOLOGY; AND CONSERVATION, INCREASINGLY CONSERVATION."

Students get a taste of research through the TREE program, which stands for Turtle Camp Research and Education in Ecology. Under-represented students from ISU and urban high schools who are identified by teachers as talented in science participate to gain experience in biology. Graduate and post-doctoral students also are part of the group.

The scientists get lots of volunteers from young kids to retirees who are camping at the island's park near Clinton. This also gives students the daily opportunity to explain why studying turtles is important.

When he started decades ago, Janzen says conservation wasn't a primary goal, but it has naturally come out of what they do. That's partly because three-quarters of the turtle species in the world are considered critically imperiled by the International Union for Conservation of Nature.

"Our original motivation for the research was basic science, but it has application and it is being applied," Janzen says.

He advises the Iowa Department of Natural Resources on policy for turtle trapping in the state, and on reptile conservation, particularly in respect to climate change. Many conservation groups also use his research findings in guidelines, practices and programs.

EGGS & "RIBBING": IT'S THE CHUCKWAGON TRADITION

By Melea Reicks Licht

The cathedral windows of the livestock pavilion glow warm amber as day breaks on Iowa State campus. Within, a quiet roar of conversation builds as alumni, faculty and students gather for the annual Chuckwagon Breakfast. Animal science professors don aprons to fix omelets and chat over steaming camp stoves.

According to animal science lore, the event dates back to the mid-1970s when department chair Bud Ewing had the idea to host a social for the department at Brookside Park.

Doug Kenealy, University Professor of animal science, recalls the early days at Brookside.

"It was cooked on the Block & Bridle homemade charcoal grill, a monstrosity that could hold hundreds of bratwurst or pork chops, which were typical fare for early Chuckwagon Breakfasts," says Kenealy. "Inclement weather caught us more than once and umbrellas and parkas were seen on the cooks. So, at some point more than a decade ago, we moved to the Farm Bureau Pavilion, also known as the old ISU Meat Laboratory."

The Chuckwagon Breakfast has since become a staple on Homecoming morning on ISU campus. Bringing together 400-plus animal science students, alumni, faculty and friends, the event offers a chance to catch up on where life has taken them, share successes, solicit advice and do a bit of good-natured ribbing.

"People search out their favorite faculty to fix their omelet. Waiting for the omelet to cook gives us time for visiting,"

Photos: Bob Elbert

"PEOPLE REALLY HAVE FUN WITH IT."

says Steve Lonergan, professor of animal science and event chair. "I think its key to success is the relaxed atmosphere, the conversation and the slow pace of the event. People really have fun with it."

Lonergan jokes that faculty and staff volunteer to fill the cooking slots, but not everyone has what it takes. He says a few have been asked to "greet" rather than fix omelets. Maynard Hogberg, professor and chair of animal science, likes the way faculty and staff work together on the event.

"It is good for our faculty to work together in a social setting. It brings them together to get to know each other and build esprit de corps, or camaraderie," Hogberg says. "It also gives us a venue to share noteworthy occasions with our friends like recognizing past judging teams or honoring retirees."

The 2009 breakfast honored retirees Lloyd Anderson and Al Christian, who each served Iowa State for 50 years. The event also included the announcement of Marvin and Janice Walter's lead gift towards building a new Agriculture Pavilion.

STORIES ONLINE EXTRA:
For a slideshow of photos from the 2009 Chuckwagon Breakfast visit: www.ag.iastate.edu/stories.

KENEALY EARNS NATIONAL TEACHING AWARD

Douglas Kenealy ('69 dairy science, '74 PhD animal nutrition), professor of animal science, received the annual USDA Food and Agricultural Sciences Excellence in Teaching Award. Kenealy was one of two people to receive the national award, which encompasses all the food and agricultural disciplines. The award is based on teaching quality, philosophy and methodology; service to the profession and students; and professional growth and development.

MILLER SERVES AS INTERIM VICE PRESIDENT FOR EXTENSION

Longtime ISU faculty member and administrator **Gerald "Jerry" Miller** has been appointed interim vice president for extension and outreach, effective June 1. Miller ('71 MS agronomy, '74 PhD) will succeed Jack Payne, vice president for extension and outreach since 2006, who accepted a position at the University of Florida, Gainesville. Miller recently stepped down as the associate dean for extension programs and outreach and the director of Extension to Agriculture and Natural Resources in the College of Agriculture and Life Sciences.

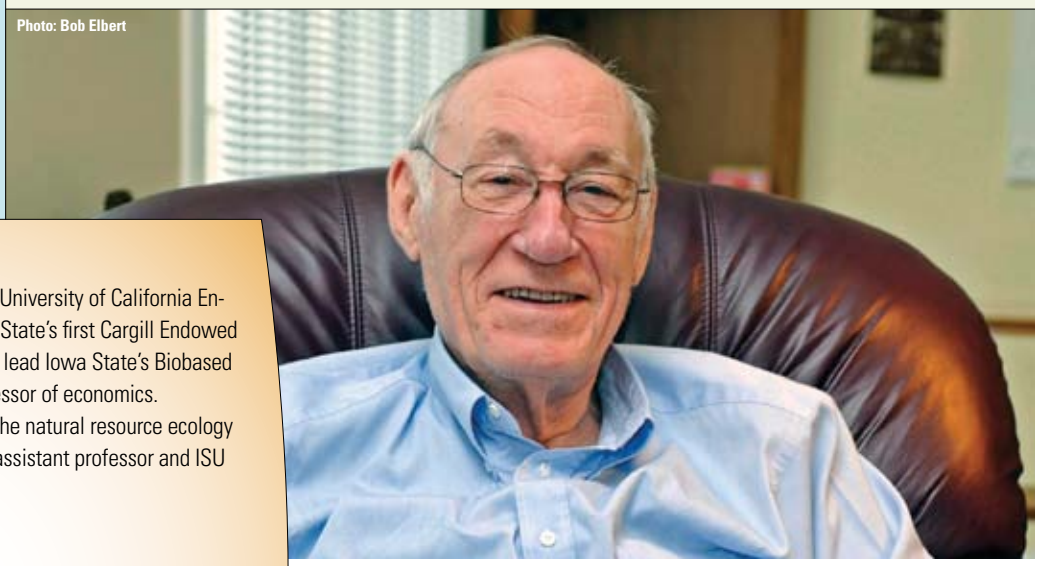
AGRONOMY PROF NAMED AAAS FELLOW

Michael Thompson, professor of agronomy, has been named a Fellow of the American Association for the Advancement of Science. He is studying the environmental applications of soil science, including the molecular-scale interactions of organic chemicals with soil minerals and organic matter.

LAWRENCE NAMED CALS ASSOCIATE DEAN FOR EXTENSION

John Lawrence, economics, has been named College of Agriculture and Life Sciences associate dean of extension and outreach and director of Extension to Agriculture and Natural Resources. Lawrence ('84 animal science, '86 MS economics) replaces Gerald Miller who stepped down in March. Lawrence previously served as director of ISU's Iowa Beef Center.

Photo: Bob Elbert



HEARTY HELLOS

James Bushnell, formerly of the University of California Energy Institute, has been named Iowa State's first Cargill Endowed Chair in Energy Economics. He'll also lead Iowa State's Biobased Industry Center as an associate professor of economics.

Rebecca Christoffel has joined the natural resource ecology and management department as an assistant professor and ISU Extension wildlife specialist.

FOND FAREWELLS

Jerry DeWitt has retired after more than 30 years with ISU. DeWitt joined the entomology faculty in 1972. He worked in administration for ISU Extension, the National Sustainable Agriculture Research and Education program of the USDA, the College of Agriculture and Life Sciences and, most recently, at the Leopold Center for Sustainable Agriculture.

Roger Ginder, professor in economics, has retired after 32 years of working with and for Iowa cooperatives. His research focused on agribusiness finance and management, cooperatives and agricultural marketing.

For a complete list of all new faculty and staff in the college from the past year, visit www.ag.iastate.edu/stories.

IN MEMORIAM: LEE KOLMER, FORMER DEAN OF AGRICULTURE

Former Dean of Agriculture **Lee Kolmer** died Jan. 18 at Kavanaugh Hospice in Des Moines from congestive heart failure. He was 82. Kolmer ('52 MS ag economics, '54 PhD) began his tenure as dean in 1972 and led the college through the farm crisis of the 1980s. Kolmer served Iowa State for most of his career. First as an Extension economist, then as Extension's state leader for agricultural and economic development, then as assistant dean of University Extension. His 14-year tenure as dean is especially remembered for his focus on increasing financial investment in agricultural research, expanding the college's international efforts and securing funds for scholarships and several college facilities. Kolmer was featured in the Spring 2008 issue of STORIES in Agriculture and Life Sciences. To read the story visit www.ag.iastate.edu/stories.

MESHING MEDICINE WITH MICROBIOLOGY

By Barbara McBreen

Standing center stage under the dome of Iowa's Capitol in Des Moines, Jennifer Blaser spoke to a crowd of more than 100 about the importance of student research.

"Undergraduate research is an opportunity to collaborate with colleagues, investigate diverse career paths and hone research skills," Blaser says.

At the Iowa Regent Universities Fifth Annual Research in the Capitol, Blaser, a junior in microbiology, was chosen as the student speaker for the event held in March. She was one of the 60 students showcasing research results during a poster presentation. Blaser's research focused on her summer internship at the University of Michigan Cardiovascular Center and Department of Pharmacology.

"We looked at a bacterial cocaine estrase, which is an enzyme, and hypothesized that it would cleave the cocaine molecule and make it biologically inactive, thus protecting the heart," Blaser says. "It's a potential therapy for cocaine overdose."

As president of the Microbiology Club, she helped organize a field day last fall for 60 high school students to come to campus and learn about microbiology.

At the field day students studied laboratory techniques, diagnostic testing and microscopy. Blaser says the goal is to get more students interested in science-based careers.

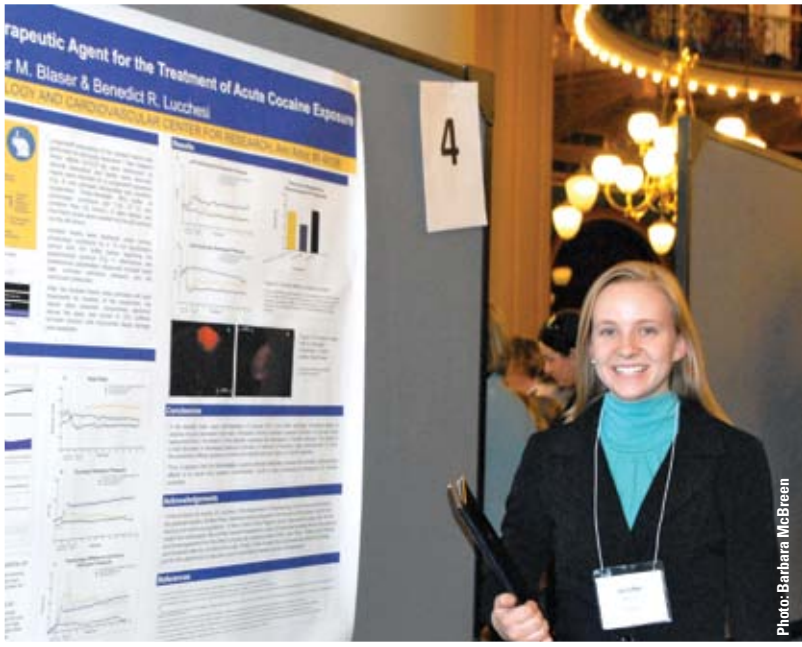


Photo: Barbara McBreen

Jennifer Blaser was one of 60 students showcasing their research at the recent Iowa Regent Universities Fifth Annual Research in the Capitol event. She also shared her passion for undergraduate research as the selected student presenter.

"WE WANT TO OPEN STUDENTS' MINDS TO THE POSSIBILITY OF PURSUING A CAREER IN THE SCIENCES."

"We want to open students' minds to the possibility of pursuing a career in the sciences," Blaser says.

At an open house during this spring's Veishea celebration, the Microbiology Club enticed visitors to walk through a giant bacterial cell or purchase a stuffed microbe. Blaser says the open house is another opportunity to educate prospective students and parents.

Photo: Barbara McBreen

As president of the Microbiology Club, Jennifer Blaser helps sell stuffed microbes at the 2010 Veishea microbiology open house. She jokes you can give someone a soft, cuddly bug instead of the real thing.

Blaser, who plans to become a doctor, is not new to the medical field. In high school she traveled to Belize on a mission trip with her father, who is a physician. There she served as a pharmacy technician. She also went to Costa Rica and Nicaragua on an international service trip where she helped diagnose patients under a doctor's supervision.

During the past year she's served as vice president of membership for the Alpha Phi Omega National Service Organization, vice president of selections for Cardinal Key Honorary and vice president of the Pre-medical Club. She also promotes Iowa State as an admissions representative and takes prospective students and parents on campus tours.

"It's all volunteer and we are all passionate about showing off the Iowa State campus," Blaser says.

Blaser understands the importance of a campus visit. It's one of the reasons she chose Iowa State. She says the campus was much larger than her high school, but people on campus were friendly and welcoming. And, she says, it's been a perfect fit.

"Iowa State has given me more than I could possibly have imagined through the numerous opportunities to succeed in academics, service and leadership," Blaser says.

photo: Barbara McBreen

THE DISCIPLINE AND BRAVERY TO SERVE AND SUCCEED

By Barbara McBreen

The Bronze Star is presented to individuals who have performed a brave or praiseworthy act while serving in the United States military during times of combat.

Tyler Bauman is one of those individuals.

In 2002, as a freshman in animal science, Bauman was deployed to Kuwait after his first week at Iowa State University. There he managed Kuwait's Ash Shuaybah Seaport. After his first tour, Bauman wanted to do more, so he volunteered for a second deployment to Iraq where he worked as a gun truck driver. He logged more than 30,000 accident-free miles during combat patrols.

Bauman received the Bronze Star for his service in Iraq and attained the rank of staff sergeant.

"We had to outfit convoys with gun trucks for protection," Bauman says. "We were a heavily outfitted patrol with a lot of weapons systems."

Adapting to change was Bauman's biggest challenge when he returned home. He says soldiers are focused on their job during deployment and remember home as their safe zone.

Above: *Tyler Bauman graduated in May with several honors, including the Bronze Star. In the Army Reserves he has seen active duty in Kuwait and Iraq since his first deployment as a freshman in 2002.*

"A lot of people had changed and I had changed, but I expected everyone to be the same when I returned," Bauman says. "I spent 19 years learning things one way and one year completely altered my perspective."

Bauman, now a graduating senior, is the Cyclone Battalion Commander in the Reserve Officers Training Corp (ROTC). He understands the importance of helping juniors train for national rankings. In 2008, he was ranked 67 out of 4,700 ROTC students for his academic and leadership performance at the national level.

ROTC training is rigorous and demanding. From the daily runs to executing mission exercises in full combat gear, it's all part of a program to develop discipline, Bauman says. At one ROTC training exercise in April, Bauman talked and joked with peers before exercises began. His demeanor became more serious when he had

to address one of his cadets. He says undergraduates look up to him because he's had combat experience.

"Having a combat patch has this effect on new cadets, they understand that I know what's going on and I have experience," Bauman says. "I've been exposed to war and I have a realistic view about how the military works in a combat environment."

Military training provided Bauman with the discipline and leadership skills he uses today. He says after returning to campus from his second deployment he was more focused and made the dean's list seven consecutive semesters. Bauman pursues the highest standards in everything he does. It's resulted in a list of awards including this year's Class of 2010 Wallace E. Barron All-University Senior Award and the L.N. Hazel Award.

Bauman's passion is poultry science. In the sixth grade he brought eight chicks home from a school incubation project and he's been fascinated ever since.

Collecting fresh eggs is part of Bauman's daily routine. He may be one of the few egg producers in Ames. In a new garage, which he and his father built, you'll find 16 laying hens in a spacious coop with an outdoor run. Bauman says one of the hens is blind, so he hand delivers her to a nest every evening.

Between studies, ROTC and serving as an undergraduate teaching assistant for two animal science classes, Bauman enjoys building and remodeling. He's remodeled his home, fenced the yard, paved the driveway, built a garage and takes care of his chickens. He grew up on the edge of Adel, Iowa, and picked up his skills working for his father at the grain elevator.

Bauman graduated in May with several honors he attributes to his nine years of service in the Army Reserves. Next fall Bauman will enter vet school at Iowa State. He plans to become a food animal veterinarian and he hopes to go into farming.

Below: *"I just love chickens. They are so simple," says Bauman who raises eggs in a retrofitted garage.*

photo: Barbara McBreen

Erica Eaves, a junior in animal ecology, holds Screechy, an eastern screech owl and permanent resident at the Wildlife Care Clinic. The clinic is housed at the Iowa State University Veterinary Medical Center.

SWABBING AN OWL AND OTHER TALES OF WILDLIFE CARE

By Barbara McBreen

Spring is a busy time at the Wildlife Care Clinic. Erica Eaves can attest to that. Early in April she spent one 10-hour day working with veterinarians trying to save a bobcat.

The bobcat had been hit by a car and both its rear legs and pelvis were fractured, Eaves says. "We spent most of the day with the bobcat, but it didn't make it. Its wounds were several days old."

That was a trying day for Eaves, a junior in animal ecology, who is passionate about rehabilitating injured wild animals.

> "IT'S SO REWARDING TO HELP ANIMALS AND SEND THEM BACK TO THEIR NATURAL HABITAT."

"It's so rewarding to help animals and send them back to their natural habitat," Eaves says. Eaves knew she wanted to work with animals, but wasn't interested in becoming a veterinarian. She didn't know where her major would take her until she began working at the clinic. Now, she works 20 hours a week during the school year and up to 60 hours a week during the summer.

Walking through the three-room clinic, which is housed inside the Iowa State University Veterinary Medical Center, Eaves describes each animal's history, injury and behavior.

"I grew up catching frogs and other animals in our yard," Eaves says. "I always knew I wanted to do something with animals."

As Eaves holds Screechy, an eastern screech owl and permanent resident at the clinic, she talks about how he hasn't forgiven her for the daily cheek swabs she did last fall. The testing was part of her undergraduate research project comparing bacteria in the digestive tract of captive birds to birds in the wild. Her results and analysis showed there was a difference.

As Screechy eyes Eaves suspiciously, she explains that most animals in the clinic are not given names to prevent human attachment.

Next to Screechy's cage is a one-winged American kestrel. Eaves says the kestrel was found on the tarmac at the Des Moines Airport, so it may have been hit by a plane. The doctors decided to amputate the wing to save its life.

"Most of our patients are here because of human contact," Eaves says. "Many patients have been hit by cars, but several baby animals are brought in mistakenly because people think they are orphaned."

The student-run clinic survives on donations. Eaves is enthusiastic about marketing the program and its educational events. After she graduates in 2011, Eaves plans to pursue a career in wildlife rehabilitation and work in a clinic similar to the one at ISU.

STORIES ONLINE EXTRA:

To visit the Wildlife Care Clinic online or learn how to donate, visit www.ag.iastate.edu/stories.

Photo: Bob Elbert

B.J. Brugman plays on the scout team for the Iowa State women's basketball team, which made it to the "Sweet 16." Brugman's a leader on campus including Alpha Gamma Rho and general co-chair for 2011 Veishea.

FROM BOOKING BANDS TO BASKETBALL

BRUGMAN WINS BIG

By Barbara McBreen

When the Iowa State University women's basketball team made it to the "Sweet 16," B.J. Brugman was watching, analyzing and hoping for a win.

Brugman, a junior in agricultural business, is a point guard for the women's scout team. That means he studies the plays of the opposing team and employs those same plays during practice sessions to give Iowa State the edge.

"My cousin was on the team 10 years ago and I remember hearing about it, so when I came to Iowa State I contacted the coach and asked about it," Brugman says.

Playing opposite Alison Lacey, Iowa State's point guard, wasn't an easy job, Brugman says, but it kept him on his toes. Lacey, who graduated in May, was drafted by the WNBA Seattle Storms.

Latoja Schaben, the assistant Iowa State women's basketball coach, says she recruited Brugman as soon as she saw him play. As the scout team point guard he's a dedicated leader that keeps the team focused, which means the women's team gets a good workout.

"Basically their job is to get our team ready," Schaben says. "They have to learn the opposing teams' plays in 20 minutes and to do that you have to know the game and understand it."

Scout team members don't get paid, but they do get a uniform, shoes and tickets to home games. Even though the practice schedule is demanding – nine hours a week – it was an opportunity he couldn't pass up.

"It really gives you a different perspective when you watch the game," Brugman says.

Brugman is proud to have been part of the effort that helped Iowa State become one of the top 16 teams nationally.

Playing on the scout team has kept Brugman in shape, but he hopes his college degree will help him attain another goal. Someday he'd like to hold the position of U.S. Secretary of Agriculture.

He's the vice president of alumni relations for Alpha Gamma Rho and served as the co-chair for the 2010 Veishea entertainment committee. Organizing and implementing entertainment for the largest student-run event in the nation was challenging and rewarding.

"We had a full house at every event," Brugman says. "The committee worked extremely hard to bring in a variety of artists. It was exciting to see it all come together."

"WE HAD A FULL HOUSE AT EVERY EVENT."

This summer Brugman has an internship at CHS Inc., which manufactures soybean oil, as a grain merchandiser in Mankato, Minn.

"Last summer I worked for Syngenta on the production side and this summer I'll help clients decide when to sell," Brugman says.

Next year he'll continue to play on the Iowa State women's basketball scout team. He'll also take on more responsibilities as the general co-chair for the 2011 Veishea.


Photo: Bob Elbert

CALS STUDENT SELECTED TO BE 2010 UDALL SCHOLAR

Samuel Bird, a second-year student in global resource systems and economics from Gilbert, has been named a 2010 Udall Scholar by the Udall Foundation. The foundation, established by Congress in 1992, awards scholarships to undergraduate students committed to careers related to the environment or Native American issues. Among other honors and activities, Bird lived and worked in Uganda as part of the ISU-Makerere University Uganda Service Learning Program, is president of the ISU International Agriculture Club and represented the International Association of Students in Agricultural and Related Sciences at the United Nations Commission on Sustainable Development in 2009.


Photo: Bob Elbert

HORTICULTURE STUDENTS HELP KEEP CAMPUS BLOOMING

The ISU Horticulture Club is involved in many projects both on and off campus, ranging from providing plants to the new Soults Visitor Center to maintaining the plants in the Gerdin Business Building, as well as their annual sales and a variety of service projects. This fall, they took on the flowerbed at the corner of Wallace and Osborn.


Photo: Barbara McBreen

TWO CALS STUDENTS RECEIVE WALLACE E. BARRON AWARD

The 2010 Wallace E. Barron Award Recipients include Tyler Bauman, a senior in animal science, and Nicole Cortum, a senior in public service and administration in agriculture. (Bauman is featured on pages 10-11). They are two of four students who were recognized at an ISU Alumni Association Board of Director's lunch Feb. 26 and at a reception at the Knoll April 25. The Wallace E. Barron All-University Senior Award was established in 1968 to recognize outstanding ISU seniors. The award is in memory of Barron, who received his bachelor's degree in 1928 in agricultural economics. After graduation, he served in various offices at Iowa State until 1970. He was editor of the Alumnus from 1935 until 1968.

CALS STUDENT TEAMS TOPS IN NATIONAL COMPETITIONS

- The Block and Bridle Club received first place for its website, first place for its annual yearbook and third place in the club activities division at the 90th Block and Bridle National Convention.
- The newly re-established Dairy Products Evaluation Team won fourth place in all products and third place in cottage cheese, cheddar cheese and butter category during the 88th Collegiate Dairy Products Evaluation Contest. It has been 34 years since ISU last had a Dairy Products Evaluation Team.
- The ISU Horse Judging Team was the highest scoring three-person team at the All-American Quarter Horse Congress and at the Arabian Horse Nationals.
- The Iowa State chapter of SEEDS (Strategies for Ecology Education, Development and Sustainability), a program of the Ecological Society of America, placed second in its chapter of the year competition. (Club adviser Fred Janzen, is profiled on page six).
- For the fourth consecutive year, the ISU Soils Judging Team has qualified for the national competition. The team placed third overall at the American Society of Agronomy Region 5 contest.
- The ISU Livestock Judging Team finished fifth overall at the American Royal Livestock Judging Contest.
- The ISU Turf Club won first place at the Collegiate Turf Bowl Competition for … the eighth time the team in nine years … at the annual Golf Course Superintendents Association of America's education conference.

UNDERGRADUATE TO PRESENT RESEARCH AT INTERNATIONAL CONFERENCE

Jenna Dixon, an undergraduate in animal science, will present her research on Duchenne muscular dystrophy (DMD) at the Experimental Biology international conference in April in Anaheim, Calif. Dixon works the lab of Josh Selsby, assistant professor in animal science. DMD is caused by a dystrophin deficiency and affects one in 3,500 male infants, leading to wheelchair confinement by the early teenage years and death by the mid to late 20s.


Photo: Bob Elbert

STUDENT COUNCIL NAMES AG MAN AND AG WOMAN OF THE YEAR

The CALS Student Council named Ryan Hrubes and Nicole Cortum the CALS Agricultural Man and Agricultural Woman of the Year at the National Ag Day barbecue March 9. Hrubes is a senior in agricultural business, and Cortum is a senior in public service and administration in agriculture. The award goes to graduating seniors who have demonstrated leadership in the college, strong academic success, and participated in quality internships and volunteer services.

THIS LITTLE PIGGY WENT TO MARKET: THE REST OF THE STORY

By Max Rothschild

Swine production is changing. It's happening primarily through the implementation of technological advancements, especially those involving genetics and genomics, the study of heredity and DNA. Iowa State University is one of the world's leaders in these developments and their applications.

Genetics has played a role in improving the pig ever since the beginning of domestication. But now it's advancing at ever increasing rates for the benefit of both producers and consumers. Many people, including students new to agriculture and even some farmers, would be quite amazed at the level of technology that's widely used in swine production today.

Over the past 20 years, rapid evolution of gene technology has been advancing the way swine breeders and producers evaluate pigs and select those with the best genes to be parents. In earlier years, producers visually chose pigs based on growth or apparent fat levels or they used weighing and ultrasonic techniques. Today those decisions are informed by the use of individual genes for determining the next generation. This gene marker testing technology consists of identifying genes within each animal and then selecting those animals with the "right stuff," which is a quite different approach than the many genetic modification improvements made in plant production.

While gene-marker technology has been used since the early 1990s to remove deleterious genes like the one linked to porcine stress syndrome, swine breeders today have new gene marker tools, many discovered at Iowa State, commercially available to them. Using these gene tests, they can select parents at relatively low costs for traits that include number of pigs born, feed efficiency and growth, reduced backfat and feed intake and pork quality.

But science is not standing still. These tests are but the first wave of the genomic technology that will continue to revolutionize production efficiency for pork producers.

Advancements are coming together fast for improvement of many livestock species. Last December, the completion of the first draft of the pig genome sequence was announced. It joined the advances of other species including chickens, cattle and horses. The swine genome sequence is the first complete unraveling of the pig's genetic code. It helps reveal the secrets of the genome, which will allow researchers to understand what individual genes control individual traits in the pig and also how those genes work in concert for complex biological functions.

We already are using a technology called a SNPchip, which contains 60,000 marker genetic tests and allows us to genotype each pig for 60,000 markers across the genome. This will alter our selection process, moving farther away from a handful of marker tests and closer to what is called genomic selection involving thousands of markers simultaneously.

This unraveling of the genetic code and the understanding that will follow in the next three to 10 years has real value for all of us. Why? Because the pig is an outstanding model species for human biology and new approaches to human health problems. But we cannot lose sight of the real, direct and critically important goals of animal genetics:

- **improve sustainable production of meat, milk, eggs and fiber;**
- **create tastier, healthier, safer and more nutritious foods;**
- **reduce animal disease and improve animal welfare; and**
- **combat hunger both here and worldwide.**

Today, producers and consumers are reaping the rewards of new genetic marker technology. Sows produce more pigs. Pigs consume less feed and grow faster and leaner. Pork quality has much improved taste and tenderness. Applications to ensure pigs lead healthier lives are underway.

So when you consider what has happened and is happening to "get this piggy to market," please remember that science-based solutions, many developed at ISU, are playing a role to improve animal agriculture worldwide.

Max Rothschild is a Charles F. Curtiss Distinguished Professor of Agriculture and Life Sciences in animal science and the M.E. Ensminger Endowed Chair in International Animal Agriculture.

INVESTIGATING DAIRY DNA TO ENSURE GOLD-MEDAL MILKERS

By Ed Adcock

Like athletes training for the Olympics, dairy cows face the challenge of eating enough to fuel their energy expenditures.

Cows devote so much energy to milk production that they can't consume enough feed to meet their other needs. That results in negative energy balance, says animal scientist Diane Spurlock.

She is studying how negative energy balance might contribute to fertility problems and affect other "fitness traits" that influence cows' well-being.

"I look at DNA polymorphisms to identify genetic markers or develop a way to select cows for improved energy balance," she says. "With that information we could produce more robust cows that can sustain the demands of very high levels of milk production. They could stay in the herd longer, be healthier and be more efficient."

The research involves determining the cow's genotype across 50,000 locations on the cow's genome and calculating a breeding value to rank the cows for selecting those with the most desirable energy balance trait.

Photo: Bob Elbert

Diane Spurlock studies cows' genotypes and assigns a breeding value rank according to each animal's energy balance trait.

It is the first research of its kind, Spurlock says. The project requires measuring the individual feed intake of 400 cows at the ISU Dairy Farm. To gather that data, each cow is assigned one gate to eat from and one electronic "key" around her neck that opens her gate. They quickly learn which is theirs.

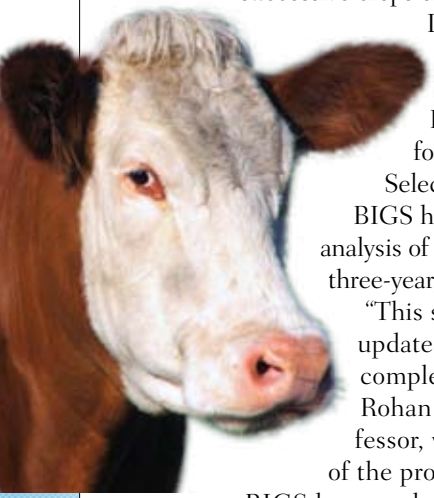
Spurlock works with a collaborator at the Scottish Agricultural Center, which has been doing work on energy balance for several years. She expects data collection to be completed this fall and will then analyze the findings.

'BIGS' PROJECT BENEFITS BEEF PRODUCERS

By Susan Thompson

Beef cattle breeders use pedigree and performance records to select animals with desirable production traits. Iowa State researchers are taking the selection process a step further with online software that speeds genetic selection.

"This project is important to the nation's beef industry because it provides the means to exploit genomics to improve successive crops of sires," says Dorian Garrick, Jay Lush Endowed Chair in Animal Breeding and Genetics.



Garrick leads the BIGS Project — an acronym for Bioinformatics to Implement Genetic Selection.

BIGS has been developed for statistical analysis of genomic data. It is funded by a three-year, $900,000 grant from the USDA.

"This software is being continuously updated and improved to handle more complex circumstances," Garrick says.

Rohan Fernando, animal science professor, works with Garrick on this part of the project.

BIGS has a web-based interface to the software, which allows users secure access to upload and remotely run analyses. A collaborator at California Polytechnic State University manages development of the interface.

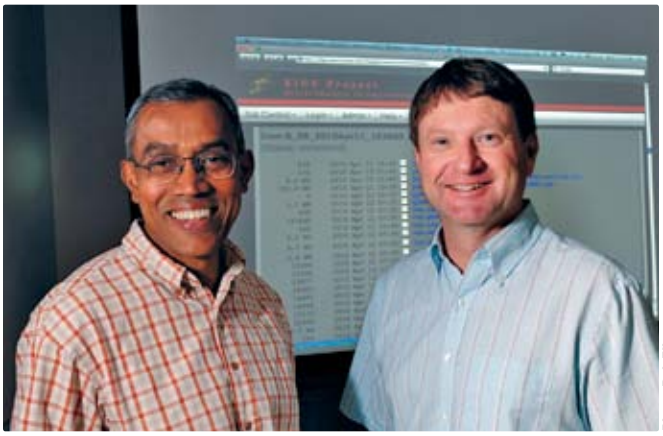


Photo: Bob Elbert

Rohan Fernando (left) and Dorian Garrick pose in front of online software that speeds genetic selection.

Research is now determining the arrangement of genomic information on each chromosome of every genotyped animal, so recombination points can be traced across generations, improving predictive ability. Collaborators at the U.S. Meat Animal Research Center (USMARC) are assisting with this.

So far, the new software has been used to analyze information from USMARC, and by collaborators in New Mexico, Canada and Australia.

Two commercial companies now offer genomic-based products and services that resulted from use of the BIGS software, and the American Angus Association has modified its national cattle evaluation system to include information from genomic tests.

Photo: Bob Elbert

Chris Tuggle's research has identified ways to predict which pigs will carry or transmit salmonella based on the animal's genetic makeup.

PREVENTING THE SPREAD OF SALMONELLA

By Melea Reicks Licht

In an effort to improve animal health and food safety, Chris Tuggle and colleagues are finding new ways to identify animals harboring salmonella.

"We are developing a blood test to identify animals that shed the least amount of salmonella into the environment," says Tuggle.

Pigs can contract and carry salmonella without showing any symptoms. Infected animals shed the bacteria in their manure, which often is used to fertilize crops.

Tuggle, professor of animal science, and his research team examine the genetic makeup of pigs and sample blood and fecal matter for evidence of salmonella. Then they look for relationships between the expression of genes in blood and the level of salmonella shed by the pig.

Their findings have identified a gene expression signature, or classifier, that can predict the level to which an animal will carry or transmit salmonella. These results can help weed out pigs who are salmonella "shedders" from swine herds through traditional animal breeding methods or manipulation of the guilty genes.

"Salmonella is present in more than half of U.S. swine herds. It results in more than $100 million in annual production losses," says Tuggle. "But more importantly, what's driving this research is the food safety issue. There are 1.4 million cases of salmonellosis in the United States annually. Our results have the potential to not only decrease salmonella contamination in pork, but also on sprouts, peppers or any other vegetable crop for which manure is used as fertilizer."

Preventing the occurrence or spread of salmonella in swine herds through genetic selection is also a way to use less antibiotics in pork – addressing new regulations, consumer trends and decreased antibiotic effectiveness.

"It takes a collaborative effort to approach this," says Tuggle. "I work with animal scientists, statisticians, computer scientists and immunologists."

Photo: Bob Elbert

Hongwei Xin leads a research team that tests how two alternative diets affect ammonia output in chicken manure.

NEW DIETS REDUCE AMMONIA, IMPROVE AIR QUALITY

By Ed Adcock

Iowa leads the nation in egg production and processing with close to 60 million laying hens at 65 locations around the state. That many chickens produce a lot of ammonia-rich manure, which needs to be managed to protect air and environmental quality. A demonstration project that wrapped up field monitoring this spring shows promise in reducing the ammonia coming from those operations.

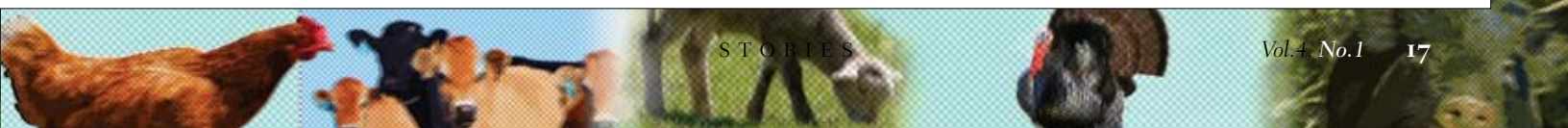
Hongwei Xin, agricultural and biosystems engineering professor who directs the Egg Industry Center, leads a research team that has been testing how two alternative diets affect ammonia output.

"Preliminary findings show about a 21 percent reduction from feeding a diet with 10 percent dried distiller's grain with solubles (DDGS) and approximately 42 percent using a commercial feed additive called EcoCal," Xin says.

The project has been underway for two years at three commercial barns with 255,000 hens in each. He says there have been no adverse effects on the bird's performance or egg production and the cost of feeding is comparable to a standard diet. Data analysis follows the field monitoring portion of the study.

"The thought is the DDGS diet works because of its high fiber content. The ethanol byproduct also is attractive because it is so plentiful in Iowa," Xin says. "The EcoCal product is an acidifier that reduces the pH of the hens' manure, which decreases the volatilization of ammonia."

A side benefit of the alternative diets is that the manure appears to have a higher nitrogen content, making it more valuable as fertilizer.



PEOPLE TRULY ARE THE KEY TO ANIMAL WELFARE EFFORTS

By Melea Reicks Licht

In addition to animal health, performance and productivity, animal welfare is an important component of livestock research at Iowa State University.

Anna Johnson, assistant professor of animal behavior and welfare in the Department of Animal Science, and Suzanne Millman, associate professor of animal welfare in the College of Veterinary Medicine, lead Iowa State's animal welfare efforts.

While their research involves animals, Johnson says animal welfare depends on people.

"Animal welfare depends on the person looking after the animals. The caretakers are the key. The best facilities won't matter if you don't have the best people working there," Johnson says. "Good animal welfare practices depend on experience and education."

Their collaborative research is driven by issues facing the livestock industry, producers, veterinarians and their own curiosity.

"The concept of animal welfare involves both science and ethics. Often science is charged with solving the world's problems, but we need to understand the underlying values," Millman says. "Results from our research need to be weighed with other considerations like food safety, profitability, farm worker safety, etc. Our job is to provide options and it's up to society, both producers and consumers, to decide what ones to take on."

"THE CARETAKERS ARE THE KEY... GOOD ANIMAL WELFARE PRACTICES DEPEND ON EXPERIENCE AND EDUCATION."

To help inform society on such issues Millman and Johnson find ways to ask animals what they prefer.

Millman and Johnson and their research crews videotape animals and analyze hours of footage noting movements and behaviors that indicate their discomfort or preferences. Subtle movements like ear flicking and head scratching or an animal's withdraw response can indicate discomfort, and their pattern of movement or drinker use can provide clues to preferred systems design.

Their current studies include sow and bovine lameness; low stress handling; humane endpoints or euthanasia; systems design, such as pen size or use of hospital pens; eating and drinking behaviors; and animal discomfort during necessary procedures such as dehorning.

Photo: Bob Elbert

Suzanne Millman (left) and Anna Johnson lead Iowa State's animal welfare efforts. Their research often includes capturing animals' behavior on video and analyzing the footage.

A lot of their work is with people.

Johnson and Millman have a strong outreach program with Iowa State University Extension livestock specialists, producers, veterinarians and others in the industry.

"We are a resource and sounding board for people" Millman says. "We want to let producers know what their options are and we have a sound commitment from producer groups and veterinarians in the state."

They also handle a lot of calls from concerned citizens and media.

Together they host symposiums on campus for animal rescue leagues, law enforcement, producers, and veterinarians during which they cover Iowa code, warning signs of animal cruelty and developing a response plan.

In addition to their extension efforts, Millman and Johnson share their expertise with students. Millman coordinates animal welfare instruction within the veterinary curriculum, and teaches several animal science courses and components including advising an animal welfare judging team.

Johnson teaches a graduate course in animal welfare via the Internet and an undergraduate course on animal behavior and well-being involving pets and farm, zoo and laboratory animals within the animal science department.

SUSTAINING THE PRODUCERS WHO CARE FOR THE HERDS

By Willy Klein

Photo: Bob Elbert

Chad Fertig, agricultural studies student, and Chris Mondak (right) discuss dairy barn design plans. Fertig is a member of Mondak's young producers peer group.

When Chris Mondak talks with dairy producers, she looks them straight in the eye. She listens. She asks questions to better understand their goals and the obstacles they may encounter. She converses with agribusiness professionals who support the dairy industry with similar intensity.

Mondak, an ISU Extension dairy livestock specialist, uses face-to-face conversations to assess the trends and needs of dairy producers and the industry. She then builds programs that address the issues.

"Dairy specialists are the face of ISU in the counties – and though I can't know everything the producers ask, they do expect me to know where to go at the university or within industry to find the information," says Mondak. "It's up to field specialists to stay connected so we can bring the depth of knowledge and research to fully address the expectations and needs."

Mondak, who has served northwestern Iowa since 2000, draws on her previous training and experiences as a dairy veterinarian to determine the type of educational programs to make available. She is one of three dairy specialists and 13 livestock specialists working in the field for ISU Extension.

"There is great variety in herd size and dairy management styles in Iowa," she says. "The challenge of extension dairy field specialists is how to meet the diverse needs of this audience with educational events and resources."

Mondak has had success with lunch-time peer group meetings that bring producers from neighboring counties together several times during the winter and once in the summer. Peer group members define winter meeting content and follow-up summer activities.

The producers attend peer group meetings because they know the information is reliable and based on research and because they enjoy the time with each other.

"They connect with experts from the university, extension and agribusiness at these meetings," Mondak says. "But just as importantly the producers are getting off the farm and talking to each other."

Mondak started a young producers group when she noticed their absence at other peer group meetings. After two sessions, she is pleased by the number attending and the interaction and exchange of ideas that takes place.

Chad Fertig, of Wall Lake, attended the first young producers meeting. "It was a great way to meet and learn from speakers and other producers, especially as my brother and I take on more decision-making responsibilities."

Recognizing and creating opportunities to develop producers' social capital is a vital part of extension work, according to Mondak.

"Dairy producers can become very isolated by the nature of their business," she says. "However, dairy leaders in Iowa recognize producers must have an active and positive presence in the public realm, both to shape policies and to build trust with consumers."

Mondak says encouraging continuing education and leadership development in dairy associations will help to build the producer capabilities needed to sustain the dairy industry.

STORIES ONLINE EXTRA: The ISU Extension website Managing Financial Tough Times for Livestock Producers offers a cross section of contacts and content that serves many producer needs. In addition to connecting producers with online resources, ISU livestock specialists offer a variety of educational opportunities – large conferences, small group workshops and discussion groups, on-farm hands-on training, tours and field days. For details and a link visit www.ag.iastate.edu/stories.

GENOMICS TOOLS LEAD TO HEALTHIER, MORE RESILIENT CHICKENS

By Brian Meyer

Susan Lamont was among the first to hear the announcement that the chicken would be the first farm animal species to have its genome sequenced. She thought: "Yes!"

Lamont, a Charles F. Curtiss Distinguished Professor in animal science, is a leading expert in poultry immunology and molecular genetics. She knew the power of genomics tools that allow analysis of vast numbers of genes would take her research to a whole new level. Especially when combined with ISU's unique poultry resources.

That's what Lamont and colleagues have been doing since the chicken genome sequence was completed in 2004. One result: they've identified more genes linked to salmonella resistance than any other research team.

"With genetics and genomics tools, we're assessing the best, most accurate information possible to select the best parents for the next generation of healthier, disease-fighting chickens," she says.

The hoped-for result: birds that devote more energy to producing safe, nutritious eggs or meat than to fending off disease. Lamont's research, which is funded by the USDA, also has looked at interactions of genomics and nutrition.

"We assess nonantibiotic dietary supplements that enhance immune response, especially against salmonella," Lamont says. "Chickens from genetic lines may respond differently to these natural substances, which contain Vitamin C or yeast extracts. It may help improve poultry health while addressing consumer preferences for less antibiotic use in animals."

Lamont also collaborates with faculty in veterinary medicine and statistics to examine differences in gene expression in birds infected with E. coli and those vaccinated against the bacterium.

"We want to understand what systems come into play that may predict a good outcome for E. coli contamination. It's definitely research grounded in a systems biology approach, which we're ideally suited to do at ISU, with expertise from all perspectives, from genomics and bioinformatics through applied work."

A feather in ISU's cap is its invaluable inbred research lines. Most were begun in the 1950s, although the oldest dates back to 1925. Some are familiar commercial lines. Others are non-commercial lines from the wild side of genetic diversity: birds native to Egypt and Spain that offer a much different genetic profile, including enhanced disease resistance.

"It's my hope that our research proves potent to science and to breeders, producers and food-safety conscious consumers," Lamont says.

"Our findings will benefit a diverse set of poultry production settings, from modern, sophisticated and environmentally controlled environments to women in the poorest areas of the world who want to raise chickens to raise their standard of living and improve their family's situation. For the latter, enhancing innate resistance to disease will be very important because they are unable to control environment." Ⓢ

Photo: Bob Elbert

Susan Lamont uses genomics tools to better understand disease resistance to help modern and traditional poultry producers. Lamont holds a rooster from "Line 8", the world's oldest line of chickens for genetic research, initiated at Iowa State in 1925.

Photo: Bob Elbert

Animal nutritionists who recently joined the animal science department include (left to right) John Patience, Nicholas Gabler, Mike Persia and Stephanie Hansen.

NUTRITIONISTS CONTINUE KEY PROGRAM IN ANIMAL SCIENCE DEPARTMENT

By Susan Thompson

For livestock producers, the cost of feed represents at least half of annual expenses. "Nutrition is the key element in the production of animal protein to enhance the human diet," says Maynard Hogberg, animal science department chair.

Iowa State's animal nutrition program was ranked among the best during the 1960s and '70s. "The university's graduates were highly sought and filled many of the open faculty and industry positions in the country," Hogberg says. "Many of the faculty were considered leaders in the field, so their graduate students were in demand."

As those nutritionists retired, many weren't replaced. But within the last two years, with help from two Iowa commodity groups, five nutrition experts have been added to the animal science faculty.

Lance Baumgard joined Iowa State in May 2009. His research focus is mechanisms involved with determining how nutrients are used. Baumgard teaches both undergraduate and graduate level courses and participates in seminars for dairy producers and allied industries.

Nicholas Gabler joined the animal science department faculty in August 2008. His swine research program focuses on understanding and improving feed efficiency in swine production, and how nutrition can maximize intestinal health and function. Gabler teaches animal nutrition to both undergraduate and graduate students. The Iowa Pork Producers Association provided $100,000 to support this position.

Stephanie Hansen ('02 animal science) returned to Iowa State in August 2009. Her research area is beef feedlot cattle nutrition. Specific interests include sulfur metabolism in cattle, mineral absorption and utilization in the rumen and intestine, and nutrient interactions. Hansen teaches, including an advanced animal nutrition class she took as an undergrad that was a deciding factor in her pursuing graduate studies.

John Patience arrived at Iowa State in September 2008. He has applied swine nutrition research projects underway in three areas — energy metabolism, feed ingredient evaluation and feeding management. Patience also is involved with graduate student training and extension activities. The Iowa Pork Producers Association provided $100,000 to support this position.

Mike Persia arrived at Iowa State in August 2009. His research area is poultry nutrition and management, focusing on applied approaches to intestinal maintenance and nutrient management. Additional responsibilities include advising and teaching at Iowa State and at the Midwest Poultry Consortium. The Iowa Egg Council provided $100,000 to support this position.

NORMAN L. JACOBSON ENDOWED PROFESSORSHIP

Lance Baumgard (right) is the first holder of the Norman L. Jacobson Endowed Professorship in Dairy Science. Jacobson (left) was a dairy nutrition physiologist at Iowa State for more than 45 years. Gifts and commitments of more than $500,000 from about 35 of Jacobson's friends, colleagues and former students made the professorship possible.

DNA ENGINEER
PAYS IT FORWARD (AND BACK)

By Melea Reicks Licht

If you visit the Science Bound Web page at Iowa State University you'll see that under "results," in addition to 56 graduates, the program for recruiting ethnically diverse students in math and science lists a number of masters graduates and "a Ph.D. in biology from Cornell University."

That Ph.D. is Charles Stewart Jr.

"Science bound was one major thing that opened my eyes to science and the impact it can have on the world," Stewart says.

Stewart ('00 agricultural biochemistry) is a research associate at the Salk Institute for Biological Studies in San Diego, Calif. The institute uses molecular biology and genetics, neurosciences and plant biology to understand and develop new treatments for a range of human diseases and improve the quality and quantity of the world's food supply.

As a postdoc in the chemical biology lab he works on discovering the structures and functions of enzymes.

Charles Stewart was the college's commencement speaker in 2000. He's now a postdoctoral research associate at the Salk Institute for Biological Studies in San Diego.

So, how exactly does he do that?

Stewart starts out at the lab bench where he places proteins in a solution that makes them crystallize over time. Then he takes a picture of the arrangement of atoms in the crystals using x-rays made by accelerating electrons in a large underground machine. He takes the pictures back to the lab where he runs software programs to visualize the proteins' structure.

"Once we understand an enzyme's three-dimensional structure and how it relates to its function we can engineer the enzyme to make products," he says. "In one project we're working with ISU researchers to create enzymes from plant sources to replace those from oil sources."

Charles Stewart talks with high school students about how he grows protein crystals to determine enzymes' 3-D structure.

He explains all this to San Diego area high school students during Salk's annual high school visit day and with Des Moines area high schoolers during his visits home to see family. His story, as well as the possible impact of his research, is inspiring.

Stewart says the other major thing that drew him to science was a summer internship program in the College of Agriculture and Life Sciences for high school minority students – now known as the George Washington Carver Internship Program.

His internship mentor Sande McNabbe in forestry and plant pathology helped Stewart follow his interests to biochemistry where he worked as an undergraduate research assistant throughout his degree work.

"That internship program immersed me in agriculture and biochemistry and taught me how they intersect," he says.

Besides working in the lab, while at ISU Stewart served as national president of Minorities in Agriculture and Natural Resource Related Sciences, worked as a resident assistant and was selected by college administration to address his fellow graduates at commencement.

"In my speech I encouraged students to always try to seize the day and excel at all you do. Don't feel like you need to follow a traditional path. It's the little side trail that you wander off on that could lead you to the most interesting things."

Stewart is certainly glad he did. From his beginnings in agricultural research at Iowa State to Cornell to his volunteer work in Ghana, Stewart continues to make his own path.

STORIES ONLINE EXTRA:
Learn more about the George Washington Carver Internship Program and Science Bound at www.ag.iastate.edu/stories.

A SMALL FARM, A PREMIUM PRODUCT, A LARGE MARKET

By Melea Reicks Licht

For Bonnie (Cowell) Hoffmann, the choice to raise goats was a good fit – in more ways than one.

When Hoffmann ('90 dairy science and public service and administration in agriculture) found herself looking for a way to support her children as a single mother of four in 2004, she discovered her situation was well suited for goat production.

"We selected meat goats because they require smaller tracts of land and my children and I could physically handle them," she says. "The initial investment for meat goats is not as large. We started with 25 acres. It was a way we could be in the livestock industry on a small farm."

Having grown up on a dairy and crop farm in northeast Iowa, Hoffmann has unexpectedly found her niche raising Boer goats – the primary meat goat breed. She says the heavy muscled animals put on meat easily and are "the Angus of goats." Her operation, near Bellevue, Iowa, consists of 45 does, 60 young stock and three billies, some of which are owned by her teenaged son, Grant Lapke.

She, Grant and several other Midwestern meat goat farmers formed a cooperative, now known as Heartland Pride, to market their product. They are partnering with Blackwing Meats to sell their goat meat, called chevon, online and through farmers markets, co-ops, restaurants and major grocery stores.

Photo: Bob Elbert

Hoffmann formed a cooperative with other Midwest goat producers and they sell their chevon through Blackwing Meats online, in grocery stores and at farmers markets.

Photo: Bob Elbert

Alumna Bonnie Hoffmann has found a large market for her small livestock operation near Bellevue, Iowa.

"When we started, our target market was the ethnic community. But since the meat is more readily available, people are learning more about it as a premium meat and we discovered there is potential to market to all of America," Hoffmann says.

The mild-flavored chevon is a great choice of protein for those who are health-conscious according to Hoffmann. She says chevon is low in fat, calories, saturated fat and cholesterol.

Now remarried, Hoffmann's husband Randy works full time and has a small cattle herd. They are finding ways to wed their two livestock operations.

"We help each other. He helps with moving bales, kidding, fencing and I help him calve. We are working to get our fencing in place to graze our goats behind our cattle," she says. "Goats prefer broadleaves and cattle are grazers. They'll help clean up brush the cattle leave behind. And they should help decrease each other's worm populations."

In addition to responsibilities on the farm and her work with Direct Contact Ag Inc. as a part-time recruiter, Hoffmann helps educate and inform others of niche businesses.

She also enjoys being involved in the activities of her children Grant (16), Madison (13), Brooke (12) and Will (8) Lapke. Hoffmann says they all help with the chores, enjoy showing goats and assist with promoting chevon.

STORIES ONLINE EXTRA:
Visit Bonnie Hoffmann's farm online and watch an interview with her at www.ag.iastate.edu/stories.

"IF SEED HAS TOO MANY OUT-CROSSES, THEN FARMERS WON'T GET THE MAXIMUM GENETIC POTENTIAL OF THE HYBRID. THE SEED NEEDS STRONG GERMINATION AND EMERGENCE AND NEEDS TO BE RELATIVELY PURE. THAT'S WHAT WE ALWAYS STRIVED TO DO."

Photo: Jim Heemstra

Agronomy alum Owen Newlin has been involved with the seed industry his entire career. He served in Pioneer Hi-Bred International's corporate leadership, increasing market share and growing the company.

A WITNESS TO ERAS OF HYBRIDS AND BIOTECH

By Melea Reicks Licht

"Did you grow up on a farm?" Owen Newlin asks a recent visitor.

He nods appreciatively when he hears the answer – "yes." It's a piece of information that's particularly meaningful to this seed industry retiree who has seen the industry evolve from conventional hybrids to biotechnology.

Newlin ('51 agronomy, '53 MS) is a retired senior vice president and director of Pioneer Hi-Bred International Inc.

The first commercial hybrid seed corn was produced in 1925 and sold to farmers in 1926 by Pioneer. By 1955 over 95 percent of corn grown in the U.S. Corn Belt was hybrid.

"This was about a 29-year period of technology adoption. Two important events were the droughts of 1934 and 1936 during which the hybrids produced some corn, while the open pollinated varieties produced much less. Those were dramatic demonstrations of the value of hybrid corn," Newlin says. "Adoption didn't happen overnight but the droughts gave hybrid adoption a big impetus."

Newlin always knew he'd find his career in agriculture. He grew up on a farm in Polk County, Iowa. To him growing up on the farm meant chores like any other farm kid – mowing and raking hay and caring for his 4-H projects.

He earned both his bachelor's and master's degrees in agronomy Iowa State. Newlin holds his experiences and training at Iowa State in very high regard, especially meeting his wife Doris Jean, a student in household equipment, at a dance exchange with her dormitory and his fraternity. In addition to FarmHouse fraternity and several honor societies, he was elected to Cardinal Key, the Student Union board, served on Ag Council and was active in the Agronomy Club.

"I was active in student organizations in college, or as they call it today the 'ISU experience'," Newlin says. "Extracurricular activities were very important because they were part of my training – developing and building consensus, and working with people of different opinions."

He also met Louis Thompson, who would become a lifelong friend, at Iowa State. As associate dean of academic programs in agriculture in 1947, Thompson shared a table with Newlin at a college event welcoming entering students. Newlin says Thompson checked-in on him during his degree work. It may have seemed like Thompson took a special interest in mentoring Newlin, but according to Newlin, Thompson made every student feel that way. Newlin was happy to answer Thompson's call three decades later when he was sought out to chair the suc-

cessful five-year campaign in support of new and improved agronomy facilities at ISU in the 1980s.

Advised by B.J. (Bugs) Firkins, Thompson and others, Newlin recognized that after his undergraduate degree he still had much to learn about plant breeding and genetics so he sought further education. He worked under George Sprague for his master's degree and also with Iver Johnson.

"I could have stayed at Iowa State for my Ph.D., but I was encouraged to diversify. By the time I left Iowa State I had taken every graduate course that had to do with plant breeding and crops that the university offered," Newlin says.

After completing his Ph.D. from the University of Minnesota in plant breeding and genetics, he was offered a job at Pioneer as a research assistant in 1955. At Pioneer Newlin began by focusing his efforts on seed quality and yields.

"My education was very helpful since the seed industry is relatively technical and is even more so today. My technological background was useful in making business decisions," he says.

He worked his way up to become president of the North American Seed Central Division of Pioneer in 1967. While there he and his team dramatically increased sales and market share by carefully choosing high performing Pioneer hybrids tailored for their geographic region. As Central Division President he promoted the development of the agronomy service department. In 1986 he was elected senior vice-president of Pioneer. Throughout his career Newlin's philosophy has always focused on farmers.

This photo of Owen Newlin from ISU's 1952 yearbook The Bomb is taken from the page on the Cardinal Key Society, Iowa State's premier honorary society.

"If seed has too many out-crosses, then farmers won't get the maximum genetic potential of the hybrid. The seed needs strong germination and emergence and needs to be relatively pure. That's what we always strived to do," he says.

Looking back on his career in the seed industry, Newlin is impressed with the technological advancements to which he has been a witness.

"The rate of technology adoption now is more rapid. From the open pollinated era to the double-cross era to the single-cross era to now the biotechnology era – I never imagined biotechnology would be possible when I started with Pioneer," he says. "And there is much more potential in the future with genetically modified crops, especially in improving nutritional value and drought resistance."

Newlin's civic involvement since retiring from Pioneer in 1993 is like a second career in itself including two six-year terms as a member and eight years as president of the Board of Regents, State of Iowa. He has only recently cut back on his extracurricular activities and is still involved in the seed industry. He also spends his time enjoying visits with his children and grandchildren.

NEWLIN PLAYED AN ACTIVE CIVIC ROLE IN SOCIETY, HIGHER ED

Owen Newlin's list of honors and achievements serves as record of his significant contributions to society, especially to the seed industry, higher education and the state of Iowa. Too lengthy to be all-inclusive, the following lists a few highlights of his awards and service.

- President Board of Regents, State of Iowa
- President United Way of Central Iowa and Campaign Chair
- Chairman of the Board of Trustees Simpson College
- FFA - Chairman National Sponsors Board, VIP Citation, Honorary Farmer Degree
- Fellow American Society of Agronomy, Fellow Crop Science Society of America
- Fellow American Association for the Advancement of Science
- Phi Kappa Phi, Distinguished Member
- Chair U.S. Grains Council, Lifetime Achievement Award
- President American Seed Research Foundation
- Honorary Member American Seed Trade Association
- Honorary Member International Seed Federation
- National Corn Growers Association President's Award
- National Agri-Marketing Association, Agri-Marketer of the Year
- Graduate Harvard University's Advanced Management Program
- President Rotary Club of Des Moines, Lifetime Service Award
- Iowa Business Hall of Fame Award, Iowa Volunteer Hall of Fame Award
- Distinguished Achievement Award, University of Minnesota
- President ISU Achievement Foundation
- Board of Directors ISU Foundation (helped establish it as an independent organization), Chair of Five-year Capital Campaign
- Iowa State University Awards
  - Alumni Recognition Medal
  - Floyd Andre Award
  - Distinguished Achievement Award
  - Alumni Merit Award
  - Order of the Knoll Campanile Award
  - Henry A. Wallace Award
  - True and Valiant Award

STORIES ONLINE EXTRA:
Read an essay on the history of the ISU-USDA corn breeding program by Arnel Hallauer, C. F. Curtiss Distinguished Professor in Agriculture and Life Sciences and agronomy emeritus professor at www.ag.iastate.edu/stories.

FFA GAVE HER THE COMPETITIVE EDGE

By Barbara McBreen

Leadership, career success and personal growth are all goals listed in the FFA mission statement.

For Lisa (Ahrens) Peterson those FFA goals became reality. Peterson credits her success in part to her FFA background. She's served as both the Iowa and National FFA president and for the past six years she's co-hosted the National FFA pre-conference shows on RFD-TV.

"We have a half hour show prior to each convention session and we talk to guests about what it's like to have 50,000 students, parents and advisers in one place at one time," Peterson says. "It's an energetic production."

Peterson ('02 ag business, agronomy) also met her husband, J.R., through FFA. Together they have two children, Ethan who will be three in August and Anna, who will be one in July. After she graduated in 2002, Peterson worked with another company for one year and then took a job with AgriBusiness Group (ABG). She says she could not have made a better choice.

ABG, now known as Adayana, is a consulting firm. Peterson says the company provides a plethora of services to help agribusinesses position themselves competitively. She says her degrees in agricultural business and agronomy prepared her for the job, but she would have never guessed she would find something as exciting and fast-paced.

"It's an incredible company," Peterson says. "We help with training, branding, research and strategy and the company's president is a former FFA national officer."

One of her most intense projects dealt with a company that separated from a regional cooperative and needed a marketing plan to establish a separate identity. It was her first major branding project and she spent one year with the client.

"We get involved when a company has pain and they don't have time or the expertise to solve the problem," Peterson says.

Now that Peterson has two small children, she's cut back her hours and works on internal communications, but she hasn't slowed down. This year she and her husband moved from Indianapolis to Clive, Iowa and also took time out to travel to the Winter Olympic games in Vancouver.

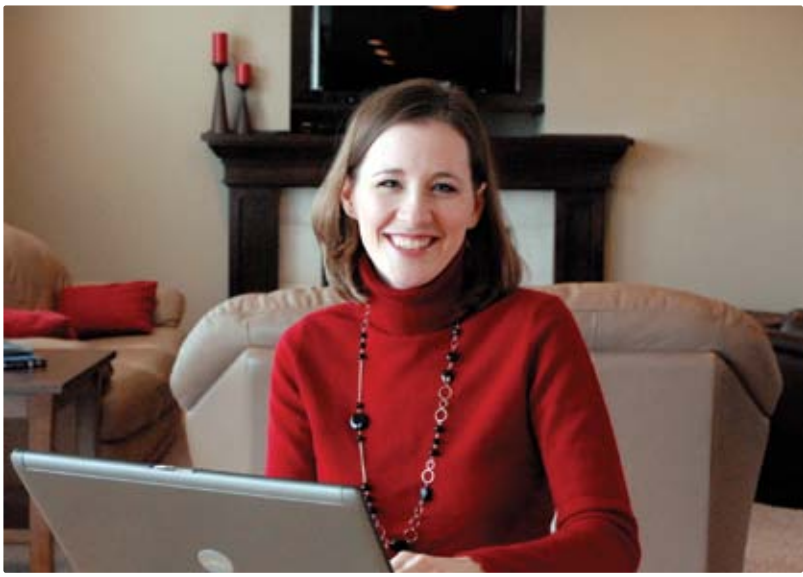


Photo: Barbara McBreen

Lisa Peterson credits her success in part to her FFA background. She works for an agricultural consulting firm in Clive and co-hosts a National FFA preconference show on RFD-TV.

Returning to Iowa reminds Peterson about her college career. She says one of her most memorable moments was her service as a student representative on The Board of Regents, State of Iowa. She served five years and was on the board when they interviewed Iowa State University's current president.

"I was on the board when we were in the process of hiring President Gregory Geoffroy," Peterson says. "It was fun, but a little odd. It also was challenging because the Regents run a multi-billion dollar system and as a college student it was daunting to look at those numbers, but my voice and my vote were important."

Peterson says, "participating in FFA allowed me to travel the world and pursue a fulfilling career." Today, she continues her involvement with FFA and encourages high school students to take advantage of the opportunities the program provides.

> "PARTICIPATING IN FFA ALLOWED ME TO TRAVEL THE WORLD AND PURSUE A FULFILLING CAREER."

ALUMNA NAMED MARKETER OF THE YEAR

The National Agri-Marketing Association has honored alumna **Stephanie Liska** with its Marketer of the Year award, the organization's most prestigious honor. The award was presented during the 2010 Agri-Marketing Conference in April. Liska is the CEO of Beck Ag Inc. She earned a bachelor's degree in public service and administration in agriculture in 1987. She is pictured (second from left) receiving the award with Amy Bradford, GROWMARK, National NAMA Professional Recognition Chair (left); Lynn Henderson, Agri Marketing Magazine, sponsor of the NAMA Marketer of the Year award (second from right); and Susie Decker, Farm Progress Companies, 2010 National NAMA President.

CALS ALUMNI HONORED AT HOMECOMING

Several College of Agriculture and Life Sciences Alumni received awards at the ISU Alumni Association Honors and Awards Ceremony at Homecoming 2009.

- Alumni Medal – **Donald Jordahl** ('58 agricultural education)
- Floyd Andre Award – **Dwight Hughes Jr.** ('70 horticulture)
- Henry A. Wallace Award – **David Wright** ('82 agronomy, '86 MS)
- George Washington Carver Distinguished Service Award – **Charles Sukup** ('76 ag engineering, '82 MS) and **Jerry DeWitt**

To learn more about award winners visit www.ag.iastate.edu/stories.

LATHAM CHAIR OF NATIONAL ORGANIZATION TO SUPPORT AG RESEARCH, TEACHING, EXTENSION

Donald Latham has been elected chairman of the national Council for Agricultural Research, Extension and Teaching (CARET) for a two-year term that began Jan. 1. CARET is a national grassroots organization to enhance support and understanding of the land-grant university system's food and agricultural research, extension and teaching programs. Delegates are chosen by land-grant universities to be representatives of their state's programs. Latham earned a bachelor's degree in agronomy in 1969.

ALUMS' LECTURES ARE AVAILABLE FOR LISTENING

Last fall's presentations of alumni **Will Martin** ('82 PhD economics), lead economist with the World Bank's Trade and Development Research Group, and **Charles Manatt** ('58 rural sociology), former ambassador to the Dominican Republic, are available as podcasts on the Lectures Program website. Martin spoke on campus Oct. 14, presenting "Trade and Food Policy Alternatives for Developing Countries." Manatt presented the 2009 William K. Deal Endowed Leadership Lecture Oct. 27, titled "Preparing Leaders to Meet Future Global Challenges." For links to the podcasts, visit www.ag.iastate.edu/stories.

YOUNG CALS ALUMNI RECOGNIZED

Among the inaugural honorees of the 2010 Iowa STATEment Makers, the new recognition program pioneered by the ISU Young Alumni Council, were: **James Johnson** ('01 ag education) and **Jeff Goodenbour** ('04 genetics). They were selected for the honor because of their early personal and professional accomplishments and contributions to society. Johnson is a farmer, teacher and coach and previously served as mayor of Avoca, Iowa. Goodenbour is a brain development and neurological researcher at UCLA, whose research has been published in *Nature*. Visit a link to view other CALS honorees and all STATEment Makers or to nominate someone for the 2011 honor www.ag.iastate.edu/stories.

President Barack Obama and James Johnson ('01 ag education)

Jeff Goodenbour ('04 genetics)

FORESTRY ALUM DIRECTOR OF SOIL AND WATER CONSERVATION SOCIETY

Jim Gulliford, who earned bachelor's and master's degrees in forestry in 1973 and 1975, became executive director of the Soil and Water Conservation Society in November. Gulliford has extensive experience in soil and water conservation, agriculture and environmental protection. Most recently he served as EPA assistant administrator for the Office of Prevention, Pesticides and Toxic Substances.

IOWA PORK INDUSTRY CENTER CONNECTS PRODUCERS WITH EXPERTS

By Sherry Hoyer

Educational opportunities for Iowa pork producers don't stop at the classroom door thanks to ongoing collaborative efforts between the Iowa Pork Producers Association (IPPA) and Iowa State University.

"There's so much information available that sometimes people don't know where to turn," says Tyler Bettin, IPPA director of producer education. "That's why we appreciate our partnership with the Iowa Pork Industry Center (IPIC) at Iowa State. From science-based research to connections with experts around the world, they make sure we're giving our members the best and most up-to-date knowledge we can."

Photo: Bob Elbert

IPIC Director John Mabry (left) and IPPA producer education director Tyler Bettin say working together helps provide high quality educational programming to pork producers and industry professionals throughout Iowa.

IPIC director John Mabry (MS '74 animal breeding and genetics, PhD '77) says the effort is a two-way street, and both appreciate what the other brings to the table.

"IPPA works with us at IPIC and ISU Extension on nearly everything we do," he says. "We cosponsor a variety of workshops, seminars and programs throughout the year and bounce ideas off each other for new and improved opportunities. IPPA also offers assistance in communicating with and contacting our clients for these and other events."

One such annual event is the Iowa Pork Regional Conferences. Since the first jointly sponsored series in 2001, IPPA and IPIC personnel have worked together to determine themes, identify expert speakers, choose strategic meeting locations and evaluate attendee opinions with an eye toward improving future programs. The high percentage of repeat participants is a true indication of the success of this venture.

> "WE STRIVE TO CONTINUE OFFERING EDUCATIONAL SESSIONS THAT PROVIDE VALUE TO IOWA'S PORK PRODUCERS, AND IOWA STATE IS A BIG PART OF HELPING US DO JUST THAT."

In addition, the partners co-host producer certification and training sessions, youth programming and scholarship opportunities and risk and financial management workshops. They also work together to develop, staff and present educational seminars at the Iowa Pork Congress and provide support for youth interested in swine production through competitive events at Congress and the Iowa State Fair.

Bettin says the Iowa State connection is vital to IPPA's mission to promote and educate for a sustainable, socially responsible, profitable and globally competitive pork industry.

"We strive to continue offering educational sessions that provide value to Iowa's pork producers, and Iowa State is a big part of helping us do just that," he says.

Mabry says the industry connection is invaluable to the center.

"IPPA provides financial resources that complement our center and institutional resources, making it possible for us to do more together than either of us could do separately. And of course, the ISU Extension swine field specialists help make it all work by combining their contacts and experience in Iowa," he says. "This partnership truly is an example of the sum being greater than its parts. Neither of us could do all that we do without the commitment and support of the other."

STORIES ONLINE EXTRA:
Learn more about ISU's partnerships with producer groups including the IPPA and the ISDA at www.ag.iastate.edu/stories.

IOWA STATE DAIRY ASSOCIATION TEAMS UP WITH ISU EXTENSION

By Willy Klein

Several times every day more than 200,000 dairy cows step into stalls on Iowa's 1,900 dairy farms to be milked. This seven-days-a-week chore supports 26,000 jobs and contributes $1.5 billion annually to Iowa's economy. Daily demands on dairy producers and processors leave little time for one-on-one visits with legislators or consumers, even though they realize the importance of good communications with these groups.

To speak for them, producers depend on the Iowa State Dairy Association (ISDA), with connections to Iowa State University Extension and regional dairy associations.

The producer-driven association got its start when chartered by the Iowa Legislature in 1876 to address breeding, feeding, disease and products. A 2001 organization restructure created the executive secretary position to serve as the organization's voice; today, Jessica Bloomberg is that voice.

"I work closely with the board of directors who represent the membership. Together we review policies and issues that affect the dairy industry," says Bloomberg. "I am building networks through the ex-officio board members with Iowa State University researchers and faculty and within the dairy industry."

Bloomberg says her Iowa State contacts provide reliable science-based information that she shares with decision-makers in support of the producers' stand on policy issues. She also finds the network of university educational research and resources to be great references for producers and consumers.

Wayne Dykshorn, ISDA board president from Sioux Center, depends on Bloomberg for legislative session updates. "There are many legislative issues that impact our industry – food safety, immigrant workers and animal welfare. As a board we rely on Iowa State to keep the association updated on current research so we make informed decisions on issues before the legislature. Then we depend on Jessica to represent the board in communications with legislators."

ISDA holds coalition meetings to review local concerns, proposed policies, national and state issues and to identify hot topics to focus organizational efforts. Leo Timms, ISU Extension dairy specialist and professor of animal science, represents Iowa State on the coalition; Kurt Wierda ('94 agricultural studies) and Jed Becker ('76 farm operations), dairy producers, represent the Western Iowa Dairy Alliance and Northeast Iowa Dairy Foundation, respectively. They say that regional association and Iowa State representation on the coalition is important to sustaining the ISDA mission.

"ISDA is a clearing house of information," says Timms. "It's like a big dairy circle; at the hub are all the important issues. ISDA is the conduit of information to and from processors and producers, legislators, ISU, consumers and environmental groups."

Becker appreciates ISDA bringing ISU research to Capitol Hill.

"Most legislators have little dairy or farm background, yet they must make policy decisions that affect the dairy industry, Becker says. "It is important to have a collective voice express the producer view, and just as important that decision makers have access to ISU research that gives credence to that perspective. ISDA provides both."

Extension specialist Leo Timms (right) discusses dairy education for youth with Jessica Bloomberg, Iowa State Dairy Association; Jed Becker (left), Northeast Dairy Foundation; and Wayne Dyskhorn, Iowa State Dairy Association and the Western Iowa Dairy Alliance.

ALUMS, FORMER CARETAKER DONATE TO NEW HORTICULTURE GREENHOUSE

By Dave Gieseke

For 31 years Arlen Patrick used bailing wire, duct tape — anything he could get his hands on — to keep the Department of Horticulture greenhouses on central campus operational.

"This is an old structure," Patrick ('72 horticulture) says. "It was built in 1915, and while I was working there I tried to keep the thing going as best as I could. It took a lot of TLC."

With a facility nearly 100 years old, there are going to be a few leaks in the ceiling and cracks in the floor.

"It's unusual for a greenhouse to last this long," Patrick says. "It's a testament to the original structure that it is still in use."

A sparkling new facility is being proposed to take its place. The new $4 million teaching and research greenhouse complex on central campus would replace the existing, aging structure.

The complex will extend to the south side of Horticulture Hall, the home of the horticulture department. The facility will include space efficient teaching and research areas equipped with state-of-the-art environmental control and innovative plant production systems.

The greenhouse complex will be partitioned into several units or houses dedicated to research, teaching, and/or club activities. Each unit will have computerized environmental controls that will help students and researchers monitor, adjust, and maintain temperature, humidity, light at the appropriate level.

Photo: Dave Gieseke

Carol and Arlen Patrick have pledged support towards a horticulture greenhouse to replace the aging structure Arlen worked in for 31 years.

Patrick, who retired earlier this year, along with his wife Carol Patrick, an Iowa State University Foundation employee and College of Education alum, have decided to put more than blood, sweat and tears into the new facility. The couple has pledged to fund a research greenhouse, which is included in the project.

"These greenhouses have been a major part of my life," Arlen Patrick says. "I think I understand the need for this facility more than the average person on the street."

The Patricks say while their gift is small in comparison to the total cost of the project, it is a way they can show their appreciation for the many ways Iowa State has made a difference in their family members' lives.

"It was our intent not only to help make this project a reality but to encourage others to help out," Arlen says.

"We've given in different ways as staff members over the years," Carol Patrick says. "For us at this time, this was the project that is near and dear to our hearts."

"It's not a pipe dream or superfluous project — it impacts lives and it needs to happen."

Campaign Committee Member Profile

HUGHES: INVEST IN ISU AS PAST DONORS INVESTED IN US

"Iowa State University has been a great part of developing me into the person I am today. Like my grandparents and parents before us, my wife Megan and I met thanks to Iowa State. It is safe to say I wouldn't be here without the relationships that developed because of the university. I personally benefitted from the leadership experiences on the Agriculture Student Council, the President's Leadership Class and FarmHouse Fraternity. I was a recipient of the College of Agriculture and Life Sciences Scholarship of Excellence Award, and I viewed that award not as a gift, but as an investment the university and donors were making in me for the future. My wife and I are thrilled to be able to give back to the university that gave us so much. In the process of starting a family, a business and a homestead we still want to make Iowa State a priority in our lives, now and into the future. My involvement with the college's campaign is a continuation of support ISU has provided to our family and our family has provided to ISU for the past 75 years, with many more years to come."

Tom Hughes ('02 horticulture), Co-president Hughes Nursery and Landscaping, College of Agriculture and Life Sciences Campaign Committee Member

Pictured from left to right: David Acker, associate dean of academic and global programs; Mark Reisinger, AAI corporate executive officer; Jerry Miller, former associate dean of extension programs and outreach; Wendy Wintersteen, dean of the College of Agriculture and Life Sciences; Lindsey Crawford, president of the Agriculture and Life Sciences Student Council; Paul Von Tersch, Van Diest Supply Company and AAI Foundation chairman; Bob Farber, Agriland FS, Inc. and AAI chairman; Mark Rosenbury, Sustainable Ammonia Fertilizer Enterprises and AAI past chairman.

AAI DONATES $100,000 FOR SCHOLARSHIPS

By Barbara McBreen

The Agribusiness Association of Iowa (AAI) has donated $100,000 to the College of Agriculture and Life Sciences for scholarships.

The scholarships will be available to students enrolling at Iowa State and pursuing careers in agriculture. Students will be eligible for the scholarships beginning this fall and funds will be distributed over a five-year period. The AAI Scholarship Program will help recruitment efforts in the college and promote career opportunities in Iowa's agricultural industries.

"The AAI scholarship program helps our college send a clear message to high school students that there are excellent opportunities in Iowa's agricultural industries and that our college is the best pathway to these careers," says David Acker, associate dean for academic and global programs.

The scholarships are targeted to attract students to agricultural industries and provide employment opportunities with AAI member companies.

"These scholarships are just one way we can support students and our future leaders in agriculture," says Mark Reisinger, AAI corporate executive officer.

AAI was formed in 1994, as the result of a merger between the Iowa Grain and Feed Association and the Iowa Fertilizer and Chemical Association.

CAMPAIGN IOWA STATE UPDATE

campaign totals as of April 23, 2010

CAMPAIGN IOWA STATE
WITH PRIDE AND PURPOSE

$800 million
$758.7 million

IOWA STATE UNIVERSITY
College of Agriculture and Life Sciences

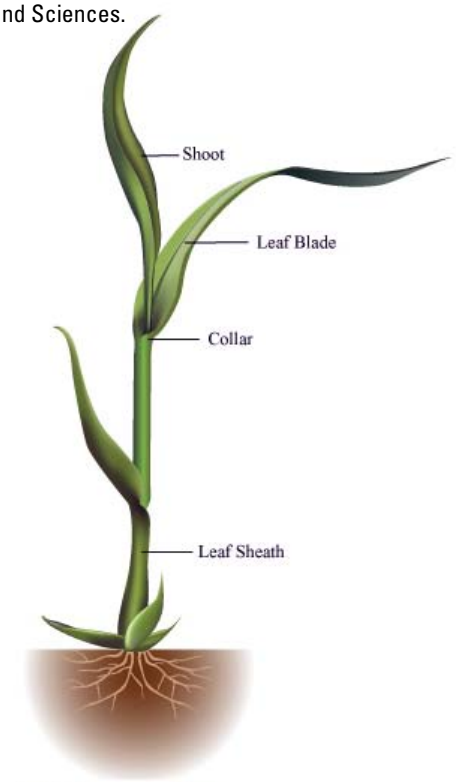
$155.2 million
$115.2 million

STUDENTS PARTICIPATE IN DEMOS WITH SEARCH, RESCUE DOGS
Robin Habeger, development officer with the ISU Foundation, moonlights as a search and rescue dog trainer. She often visits animal science undergraduate courses to demonstrate training methods. During the demonstration she emphasizes the importance of body language, timing and play as a reward for working dogs. The students pictured are in Anna Johnson's domestic animal behavior and well-being class (see story on Johnson on page 18). Moses, a yellow labrador-golden retriever mix, is one of two search and rescue dogs owned by Habeger. He is a FEMA disaster dog in training.

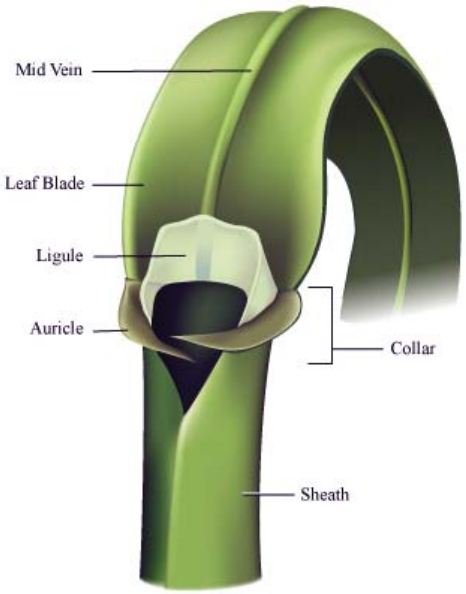
VIDEO HIGHLIGHTS GRAD STUDENTS' BIORENEWABLE RESEARCH
College of Agriculture and Life Sciences scientists and graduate students are researching technologies, biomass and cropping systems to help Iowa become a leader in the bioeconomy. Together they are partnering with farmers, businesses and industry to produce food, feed, fiber and fuel and create new opportunities for Iowans. To watch the video visit www.ag.iastate.edu/stories.

AUTOMATED ODOR MITIGATION GETS CUES FROM CLIMATE
Steven Hoff, an Iowa State University professor of agricultural and biosystems engineering, has developed a system for operating odor mitigation systems only when the weather is most likely to cause the odors to become a nuisance to neighbors. Hoff's odor mitigation prototype monitors several climate variables and operates only when neighbors may be affected. The system is a miniature weather station that includes locations of neighbors as part of its programming. "If no one is going to be impacted by the odors emitting from a pig house, let's say, or a poultry house, then save the farmer some money and don't mitigate," he says. Learn more at www.ag.iastate.edu/stories.

BUDDING ILLUSTRATORS CREATE DRAWINGS FOR NEW ISU WEED IDENTIFICATION GUIDE
Students in biological and pre-medical illustration (BPMI) created technically accurate illustrations of several grass species for a Weed ID Guide published by the Corn and Soybean Initiative in CALS. The publication is part of a series of field guides widely used by agriculture and university professionals and growers to aid in-field crop management. In return, the students earned course credit towards their degree in BPMI, an undergraduate major in ISU's colleges of Design and Liberal Arts and Sciences.



Basic Structure of Grass



Large View of Ligule

STORIES
IN AGRICULTURE AND LIFE SCIENCES

NEXT ISSUE
GLOBAL IMPACT

The next issue of STORIES exemplifies the **far-reaching impact of CALS** faculty, students and alumni. Meet those working in **international development**, **world food issues and technology transfer**. Find stories on **international faculty partnerships** and learn how **study abroad programs** prepare a new generation of global citizens.

College of Agriculture and Life Sciences Apparel Now Available

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ISU vs. Northern Illinois
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RSVPs required.

Contact Beth Weiser, weiser@iastate.edu or (515) 294-9332, to receive an invitation.

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Back then, Jon knew more about animals **than other six-year-olds.**

While most kids his age grew up with stuffed animals, Jon was surrounded by the real thing. No surprise that when the time came, he pursued an animal science major at Iowa State. After all, we offer a world-renowned academic program and many leadership opportunities. Jon took full advantage. He was vice-president of Pre-Vet Club and involved in Block and Bridle. Now Jon is off to veterinary school - to follow his lifelong mission.

IOWA STATE UNIVERSITY
College of Agriculture and Life Sciences

www.agstudent.iastate.edu

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